

WHAT IS CLAIMED IS:

1. A method for switching data streams,
comprising:

generating a plurality of synchronous transport
5 signal streams;

determining a destination associated with each
synchronous transport signal stream;

recording the destination in an overhead of the
associated synchronous transport signal stream; and

10 routing each synchronous transport signal stream
according to the associated destination.

2. The method of Claim 1, wherein:

generating the synchronous transport signal streams
15 comprises generating the synchronous transport signal
streams at a transmitting interface; and

further comprising transmitting the synchronous
transport signal streams to a switch.

20 3. The method of Claim 1, wherein determining the
destination of a synchronous transport signal stream
comprises conducting a negotiation for the destination
between a first transmitting interface and a second
transmitting interface.

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4. The method of Claim 1, wherein determining the
destination of a synchronous transport signal stream
comprises conducting a negotiation for the destination
between a transmitting interface and a destination
30 interface.

5 5. The method of Claim 1, wherein recording the destination in the overhead of the associated synchronous transport signal stream comprises recording the destination in a field of a transport overhead of the synchronous transport signal stream.

10 6. The method of Claim 1, wherein routing each synchronous transport signal stream comprises:
 determining the destination from the overhead of the synchronous transport signal stream; and
 configuring a switch to route the synchronous transport signal stream to the destination.

15 7. The method of Claim 1, wherein routing each synchronous transport signal stream comprises:
 determining a time slot from the destination recorded in the overhead of the synchronous transport signal stream; and
 inserting the synchronous transport signal stream in
20 the time slot of an outgoing synchronous transport signal stream.

25 8. The method of Claim 1, wherein routing each synchronous transport signal stream comprises:
 determining a destination interface from the destination recorded in the overhead of the synchronous transport signal stream; and
 transmitting the synchronous transport signal stream to the destination interface.

9. The method of Claim 1, wherein:

a synchronous transport signal stream transports data based on a communications standard; and

generating the synchronous transport signal streams
5 comprises generating the synchronous transport signal streams at an interface based on the communications standard.

10. The method of Claim 1, wherein:

10 each synchronous transport signal stream comprises a synchronous transport signal-level 1 stream; and

further comprising multiplexing the synchronous transport signal-level 1 streams to yield a synchronous transport signal-level n stream.

11. A system for switching data streams,
comprising:

a transmitting interface operable to:

generate a plurality of synchronous transport
5 signal streams;

determine a destination associated with each
synchronous transport signal stream; and

record the destination in an overhead of the
associated synchronous transport signal stream; and

10 a switch coupled to the transmitting interface and
operable to:

receive the synchronous transport signal
streams from the transmitting interface;

determine the destinations from the overheads;

15 and

route each synchronous transport signal stream
according to the associated destination.

12. The system of Claim 11, wherein the
20 transmitting interface is operable to determine the
destination by negotiating with a second transmitting
interface to determine the destination.

13. The system of Claim 11, wherein the
25 transmitting interface is operable to determine the
destination by negotiating with a destination interface
to determine the destination.

14. The system of Claim 11, wherein the transmitting interface is operable to record the destination in the overhead of the associated synchronous transport signal stream by recording the destination in a
5 field of a transport overhead of the synchronous transport signal stream.

15. The system of Claim 11, wherein the switch is operable to route each synchronous transport signal stream by:

determining the destination from the overhead of the synchronous transport signal stream; and

15 configuring the switch to route the synchronous transport signal stream to the destination.

16. The system of Claim 11, wherein the switch is operable to route each synchronous transport signal stream by:

20 determining a time slot from the destination recorded in the overhead of the synchronous transport signal stream; and

inserting the synchronous transport signal stream in the time slot of an outgoing synchronous transport signal stream.

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17. The system of Claim 11, wherein the switch is operable to route each synchronous transport signal stream by:

5 determining a destination interface from the destination recorded in the overhead of the synchronous transport signal stream; and

transmitting the synchronous transport signal stream to the destination interface.

10 18. The system of Claim 11, wherein:
a synchronous transport signal stream comprises data based on a communications standard; and

15 a transmitting interface comprises an interface based on the communications standard.

19. The system of Claim 11, further comprising a second transmitting interface coupled to the switch and operable to:

20 generate a plurality of synchronous transport signal streams;

determine a destination associated with each synchronous transport signal stream; and

record the destination in an overhead of the associated synchronous transport signal stream.

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20. The system of Claim 11, wherein

each synchronous transport signal stream comprises a synchronous transport signal-level 1 stream; and

30 the transmitting interface is operable to multiplex the synchronous transport signal-level 1 streams to yield a synchronous transport signal-level n stream.

21. A switch for switching data streams, comprising:

an input operable to receive a plurality of synchronous transport signal streams, each synchronous transport signal stream comprising an overhead recording a destination;

a monitor coupled to the input and operable to receive the synchronous transport signal streams from the input and to determine the destinations recorded in the overheads; and

a control module coupled to the monitor, the monitor operable to reconfigure the control module to route each synchronous transport signal stream to the destination recorded in the overhead of the synchronous transport signal stream.

22. The switch of Claim 21, further comprising a multiplexer coupled to the control module and operable to multiplex at least two synchronous transport signal streams.

23. The switch of Claim 22, wherein:

the monitor is operable to determine a time slot from the destination recorded in the overhead of a synchronous transport signal stream; and

the multiplexer is operable to insert the synchronous transport signal stream in the time slot of an outgoing synchronous transport signal stream.

24. The switch of Claim 22, wherein:

the monitor is operable to determine a destination interface from the destination recorded in the overhead of a synchronous transport signal stream; and

5 the multiplexer is operable to transmit the synchronous transport signal stream to the destination interface.

25. The switch of Claim 21, wherein:

10 a synchronous transport signal stream comprises data based on a communications standard; and

the input is operable to receive a synchronous transport signal stream from an interface based on the communications standard.

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26. The switch of Claim 21, wherein:

each synchronous transport signal stream comprises a synchronous transport signal-level 1 stream; and

20 the input is operable to receive a synchronous transport signal-level n stream that comprises the synchronous transport signal-level 1 streams.

27. A system for switching data streams, comprising:

means for generating a plurality of synchronous transport signal streams;

5 means for determining a destination associated with each synchronous transport signal stream;

means for recording the destination in an overhead of the associated synchronous transport signal stream; and

10 means for routing each synchronous transport signal stream according to the associated destination.

28. The system of Claim 27, wherein:

the means for generating the synchronous transport
15 signal streams is operable to generate the synchronous transport signal streams at a transmitting interface; and

further comprising means for transmitting the synchronous transport signal streams to a switch.

20 29. The system of Claim 27, wherein the means for determining the destination of a synchronous transport signal stream is operable to determine the destination by conducting a negotiation for the destination between a first transmitting interface and a second transmitting
25 interface.

30 30. The system of Claim 27, wherein the means for determining the destination of a synchronous transport signal stream is operable to determine the destination by conducting a negotiation for the destination between a transmitting interface and a destination interface.

31. The system of Claim 27, wherein the means for recording the destination in the overhead of the associated synchronous transport signal stream is operable to record the destination in a field of a transport overhead of the synchronous transport signal stream.

32. The system of Claim 27, wherein the means for routing each synchronous transport signal stream is operable to route each synchronous transport signal stream by:

determining the destination from the overhead of the synchronous transport signal stream; and

configuring a switch to route the synchronous transport signal stream to the destination.

33. The system of Claim 27, wherein the means for routing each synchronous transport signal stream is operable to route each synchronous transport signal stream by:

determining a time slot from the destination recorded in the overhead of the synchronous transport signal stream; and

inserting the synchronous transport signal stream in the time slot of an outgoing synchronous transport signal stream.

34. The system of Claim 27, wherein the means for routing each synchronous transport signal stream is operable to route each synchronous transport signal stream by:

5 determining a destination interface from the destination recorded in the overhead of the synchronous transport signal stream; and

 transmitting the synchronous transport signal stream to the destination interface.

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35. The system of Claim 27, wherein:

 a synchronous transport signal stream comprises data based on a communications standard; and

 the means for generating the synchronous transport
15 signal streams is operable to generate the synchronous transport signal streams at an interface based on the communications standard.

36. The system of Claim 27, wherein:

20 each synchronous transport signal stream comprises a synchronous transport signal-level 1 stream; and

 further comprising means for multiplexing the synchronous transport signal-level 1 streams to yield a synchronous transport signal-level n stream.

37. Logic for switching data streams, the logic encoded in media and operable to:

generate a plurality of synchronous transport signal streams;

5 determine a destination associated with each synchronous transport signal stream;

record the destination in an overhead of the associated synchronous transport signal stream; and

10 route each synchronous transport signal stream according to the associated destination.

38. The logic of Claim 34, wherein the logic is operable to:

15 generate the synchronous transport signal streams at a transmitting interface; and

transmit the synchronous transport signal streams to a switch

20 39. The logic of Claim 34, wherein the logic is operable to determine the destination of a synchronous transport signal stream by conducting a negotiation for the destination between a first transmitting interface and a second transmitting interface.

25 40. The logic of Claim 34, wherein the logic is operable to determine the destination of a synchronous transport signal stream by conducting a negotiation for the destination between a transmitting interface and a destination interface.

41. The logic of Claim 34, wherein the logic is operable to record the destination in the overhead of the associated synchronous transport signal stream by recording the destination in a field of a transport
5 overhead of the synchronous transport signal stream.

42. The logic of Claim 34, wherein the logic is operable to route each synchronous transport signal stream by:

10 determining the destination from the overhead of the synchronous transport signal stream; and
configuring a switch to route the synchronous transport signal stream to the destination.

15 43. The logic of Claim 34, wherein the logic is operable to route each synchronous transport signal stream by:

determining a time slot from the destination recorded in the overhead of the synchronous transport
20 signal stream; and

inserting the synchronous transport signal stream in the time slot of an outgoing synchronous transport signal stream.

25 44. The logic of Claim 34, wherein the logic is operable to route each synchronous transport signal stream by:

determining a destination interface from the destination recorded in the overhead of the synchronous
30 transport signal stream; and

transmitting the synchronous transport signal stream to the destination interface.

45. The logic of Claim 34, wherein:

a synchronous transport signal stream comprises data based on a communications standard; and

5 the logic is operable to generate the synchronous transport signal streams at an interface based on the communications standard.

46. The logic of Claim 34, wherein:

10 each synchronous transport signal stream comprises a synchronous transport signal-level 1 stream; and

the logic is operable to multiplex the synchronous transport signal-level 1 streams to yield a synchronous transport signal-level n stream.

47. A system for switching data streams, comprising:

a plurality of transmitting interfaces, at least one transmitting interface comprising an Ethernet interface,
5 at least one transmitting interface comprising a SONET interface, each transmitting interface operable to:

generate a plurality of synchronous transport signal streams, at least one synchronous transport signal stream comprising Ethernet data, at least one synchronous
10 transport signal stream comprising SONET data;

negotiate with a destination interface of a plurality of destination interfaces to determine a destination associated with each synchronous transport signal stream; and

15 record the destination in a transport overhead of the associated synchronous transport signal stream; and

a switch coupled to the transmitting interfaces and comprising:

20 an input operable to receive the synchronous transport signal streams;

a monitor coupled to the input and operable to receive the synchronous transport signal streams from the input, and to determine a time slot and a destination
25 interface from the destination recorded in the transport overhead of a synchronous transport signal stream;

a control module coupled to the monitor, the monitor operable to reconfigure the control module; and

a multiplexer coupled to the control module and
30 operable to receive a routing instruction from the control module, to insert a synchronous transport signal stream in the determined time slot of an outgoing

synchronous transport signal stream, and to transmit the synchronous transport signal stream to the destination interface.